

From glowbugs@theporch.com Thu Jun 13 11:02:59 1996
Return-Path: glowbugs@theporch.com
Received: from uro (localhost.theporch.com [127.0.0.1]) by uro.theporch.com
(8.7.5/AUX-3.1.1) with SMTP id KAA02111; Thu, 13 Jun 1996 10:57:52 -0500 (CDT)
Date: Thu, 13 Jun 1996 10:57:52 -0500 (CDT)
Message-Id: <199606131557.KAA02111@uro.theporch.com>
Errors-To: ws4s@midtenn.net
Reply-To: glowbugs@theporch.com
Originator: glowbugs@theporch.com
Sender: glowbugs@theporch.com
Precedence: bulk
From: glowbugs@theporch.com
To: Multiple recipients of list <glowbugs@theporch.com>
Subject: GLOWBUGS digest 213
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: 0

GLOWBUGS Digest 213

Topics covered in this issue include:

- 1) BA plate battery funzies
by rdkeys@csemail.cropsci.ncsu.edu

Date: Thu, 13 Jun 1996 11:55:34 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
To: boatanchors@theporch.com, glowbugs@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: BA plate battery funzies
Message-ID: <9606131555.AA108032@csemail.cropsci.ncsu.edu>

Whilst getting ready for our BA jaunt aboard the BB55, I decided to put together a receiver plate battery and filament battery that would run the line receivers even without AC power (scarce out on the fantail).

I made a box out of plywood and 2x4's, put a couple of runners under it to keep it from squashing the fingers when setting it down somewhere, and then painted it --- u-guessed-it battleship grey.....(:+}}. For safety, I installed a polarized 250v AC line plug receptacle (one of the kind very rarely used anywhere anymore) and mounted it up in a single plugbox. That plug is used to pipe power to the receivers.

After loading up 16 each 12vdc 7ah sealed lead acid batteries (the smallest ones usually found in surplus from light banks, UPS's etc.) and installing insulated safety plugs on each battery terminal, the thing weighs in at

about 100 plus pounds of lead. Not yer small watch battery, but well befitting Boatanchorite or Glowbuggite use. It should run Henrietta Hartley quite well.

The usual charging rate for cyclic charging of such batteries is C/7 for 10 hours or for floating charge C/100 to C/400. So, I put the beastie up on the GenRad regulated power supply, added a classic 25 watt series resistance charging lamp (from Sterling's Radio Manual or Bucher's Practical Wireless Telegraphy) and took measurements of charging parameters.

So for anyone interested in building up plate batteries for BA use, the following data was obtained, that might be of use.

Battery = 192vdc 7ah

Cyclic Charge Rate = $C/7 = 7/7 = 1.000$ amp max for 10 hours

Floating Charge Rate = $C/100 = 7/100 = 0.070$ amp, to,
 $C/400 = 7/400 = 0.017$ amp.

For practical reasons, I expect about 20 ma for floating charge to maybe 150ma max charge (all I can get out of the GenRad power supply).

Thus, working for a range of possible charging currents of 20 to 150ma, I wanted to see what voltages and lamps could be used, reasonably.

Expected battery usage is 50-100 ma to run things like the RAL and the RBC receivers on 180-192 plate volts.

Note: Outgassing on these batteries occurs at about 100 ma and above, so I wanted to try to keep outgassing minimal and stick to a floating charge that would replenish my use from the battery over time. If I used the battery 3 hours a night 7 days a week at 100mah, it would require about 130% of that recharge to replenish the battery. Thus charge C would be:

$$C = 1.30 \times 3 \times 7 \times 100 \text{ mah} = 2730 \text{ mah per week, or 16 ma per hour}$$

constant floating charge current. Using that basis, I wanted to see what the charging parameters might be for average use.

- 1) using a 60 watt lamp charging resistance the current was easily set to up to 150ma, but the power supply was hard to control and maintain a constant charging current (too sensitive).
- 2) using a 25 watt lamp charging resistance the current was easily set to up to about 130 ma at 275 volts and the lamp lit moderately brightly. Control of regulation was good. At 75-100 ma current, the bulb was just perceptibly glowing a weak orange glow and the voltage was 240vdc. At 20 ma it was hard to control again (too sensitive).

3) using a 4 watt xmas tree lamp in the small edison base socket, the current was easily set at any value up to 40 ma at 275vdc. At 250vdc it regulated nicely at 20ma. At 220 vdc it regulated nicely at about 16ma.

Thus, I can now comfortably float the plate battery across a 220 vdc source from a very small transformer, using a 4 watt xmas tree lamp as the charging resistance, and have a good floating charger for the battery.

Upping the charging current to about 20 ma and then pulling the charge line while operating should make for a very viable, non-explosive battery system to keep the RAL/RBC/regenerators/hartleys, etc., happy.

Also, man o man o man is it ever quiet on the tin cans with the RAL running battery power. NO AC HUM at all! Plus, the 6 v 105 ah wet nicad I have along with this plate battery will run the RAL and the RBB off battery power for the entire FD funzies (3 days) without blinking!

One does not really appreciate how quiet battery power is until one unhooks the dratted AC line.....(:+{}....

73/ZUT DE NA4G/Bob UP

p.s.

PLEASE BE CAREFUL AROUND HIGH VOLTAGE BATTERIES OF ANY SORT, ESPECIALLY RECHARGEABLE ONES OF HIGH CURRENT CAPACITY. SUCH BATTERIES CAN BE DANGEROUS TO YOUR PERSON AND REQUIRE CARE AND RESPECT IN THEIR USAGE. USE IN VENTILATED ROOMS WHERE HYDROGEN GASES WILL NOT BUILD UP TO EXPLOSIVE LEVELS. KEEP BATTERY TERMINALS COVERED PROPERLY, AT ALL TIMES, TO PREVENT SHOCK.

End of GLOWBUGS Digest 213
